Regularization/R (Q7L8)

Total Questions: 20

Most Correct Answers: **#13**

Least Correct Answers: **#14**

1. In Poisson regression...

2/10   (A)   The asymptotic distribution of the maximum likelihood estimates is multivariate normal.

0/10   (B)   The distribution of the maximum likelihood estimates is multivariate normal.

4/10   (C)   The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.

1/10   (D)   I do not know

2. In the case of intercept-only model

5/10   (A)   The mean of the dependent variable equals the exponential value of intercept

3/10   (B)   The mean of the dependent variable equals the intercept

1/10   (C)   The mean of the dependent variable equals 0

0/10   (D)   I do not know

3. ln(lambda) = 0.6 - 0.2* female [lamda = the average number of articles] Note: e^(-0.2)=0.78

4/10   (A)   One unit increase in female brings a 0.2 decrease in ln(lambda).

4/10   (B)   Being female decreases the average number of articles by 0.78 percent

2/10   (C)   Being female decreases the average number of articles by 22%

0/10   (D)   I do not know

4. In the multiple linear regression, we assume that...

7/10   (A)   The number of observations is much larger than the number of variables (n>>p)

0/10   (B)   The number of observations is slightly larger than the number of variables (n>p)

0/10   (C)   The number of observations equals than the number of variables (n=p)

1/10   (D)   The number of observations is lees than the number of variables (n<p)

0/10   (E)   It is not important

0/10   (F)   I do not know

5. **The way of solving the problem of a large number of variables is...**

3/10   (A)   Subset Selection & Shrinkage (Regularization)

4/10   (B)   Shrinkage (Regularization) & Maximum Likelihood estimation

0/10   (C)   Dimension Reduction & OLS estimation

2/10   (D)   I do not know

0/10   (E)   The absence of the right answer

6. **The bias of an estimator (e.g. z^) equals...Hint: the OLS coefficients are unbias :)**

2/10   (A) $E(z\hat{}) - z$

3/10   (B) $E(z^2) - [E(z)]^2$

1/10   (C) $[E(z^2) - E(z)]^2$

0/10   (D) $E(z^2)$

2/10   (E)   I do not know

7. **The main idea of regularization is**

4/10   (A)   To introduce a small amount of bias in order to have less variance.

2/10   (B)   To introduce a small amount of variance in order to have less bias.

1/10   (C)   To introduce a small amount of variance and bias in order to have less bias.

1/10   (D)   I do not know

8. **With which function we can show regularization in R**

2/10   (A)   glmnet()

5/10   (B)   regular()

1/10   (C)   lm()

2/10   (D)   glm()

0/10   (E)   I do not know

9. How the tune of any parametr can be made

3/10 (A) using Cross validation

0/10 (B) It is impossible

3/10 (C) I do not now

3/10 (D) using larger sample

0/10 (E) only having population

10. Elastic Net is

4/10 (A) the combination of L1 and L2 regularization

1/10 (B) the combination of L2 and L3 regularization

0/10 (C) is independent from other types of refularization

3/10 (D) I do not know

0/10 (E) not a type of regularization

11. Regularization is used only for

2/10 (A) Poisson Regression

1/10 (B) Linear Regression

1/10 (C) Logistic Regression

4/10 (D) any regression

1/10 (E) I do not know

12. Regularization can solve the problem of

1/10 (A) heteroscedasticity

7/10 (B) multicollinearity

0/10 (C) autocorrelation

0/10 (D) I do not know

13. As a result of regularization we will have

10/10 (A) smaller slope than in case of OLS

0/10 (B) larger slope than in case of OLS

0/10 (C) the slope remains the same

0/10 (D) I do not know

14. **The ridge coefficient estimates shrink towards zero**

1/10 (A) when lambda increases

3/10 (B) when lambda decreases

4/10 (C) when lambda = 0

1/10 (D) I do not know

15. **Which one can shrink the slope all the way to 0?**

3/10 (A) Lasso

6/10 (B) Ridge

0/10 (C) Regression

0/10 (D) I do not know

16. **When lambda = 0, we have**

2/10 (A) Ridge

3/10 (B) Lasso

2/10 (C) EL

2/10 (D) Regression

0/10 (E) I do not know

17. **When alpha = 0, we have**

1/10 (A) Ridge

4/10 (B) Lasso

0/10 (C) EL

0/10 (D) Regression

3/10 (E) I do not know

18. ...variables need to be incorporated in the model according to domain knowledge...

This statement is true for...

3/10 (A) Ridge

0/10 (B) Lasso

0/10 (C) EL

1/10 (D) Regression

3/10 (E) I do not know

19. Which function can help to perform cross-validation for regularization in R?

3/10 (A) cv.glmnet()

3/10 (B) cros_val()

1/10 (C) glmnet(method = "cv)

3/10 (D) I do not know

20. Why we use set.seed() in R?

5/10 (A) To have universal result

0/10 (B) To perform better result

4/10 (C) To have random models

0/10 (D) I do not know